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EXAMINER

CHOWDHURY, TARIFUR RASHID

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 07/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/522,609

Applicant(s)

SHOICHI KUROHA

Examiner

Tarifur R Chowdhury

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,4-8,13 and 15-21 is/are pending in the application.
- 4a) Of the above claim(s) 7 and 15-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-6,13 and 18-21 is/are rejected.
- 7) ☒ Claim(s) 2 and 8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 9 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. **Claims 1, 4-6, 13, 20 and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Sonoda et al., (Sonoda), USPAT 6,433,852.**

Sonoda discloses and shows in Fig. 2, an in-plane switching type liquid crystal display (LCD) comprising:

- a first substrate (SUB1);
- a second substrate (SUB2) opposing to the first substrate (SUB1);
- a liquid crystal layer (LC) sandwiched between the first and second substrate;
- at least one pixel electrode (PX) and at least one common electrode (CT) formed on the first substrate (SUB1);
- at least one spacer (SP1) which is positioned under an opaque region (BM);
- and
- at least one projection (SP2) which is formed on the common electrode (CT).

Accordingly, claims 1, 13 and 21 are anticipated.

As to claim 4, it is clear from Fig. 2 of Sonoda that the height of the projection (SP2) is longer than approximately 1% the length of the diameter of the spacer (SP1).

As to claim 5, Sonoda shows in Fig. 2 that the width of the projection (SP2) is equal to the diameter of the spacer (SP1).

As to claim 6, it is also clear from Fig. 2 of Sonoda that the projection (SP2) is formed by structuring a bumpy layer under an alignment layer (ORI1).

As to claim 20, Sonoda discloses (col. 12, lines 7-12) that the projection (SP2) comprises a resin material.

**3. Claim 21 is rejected under 35 U.S.C. 102(e) as being clearly anticipated by Lee et al., (Lee), USPAT 5,959,708.**

4. Lee discloses (col. 2, line 65 – col. 3, line 7; col. 4, lines 1-7) and shows in Fig. 4, a liquid crystal display comprising:

- a liquid crystal layer sandwiched between the first and second substrates;
- at least one pixel electrode (33) and at least one common electrode (31) formed on the first substrate (30); and
- conductive high molecular films (34B) (applicant's projection) formed on the common electrode (31).

Accordingly, claim 21 is clearly anticipated.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**6. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sonoda as applied to claims 1, 4-6, 13, 20 and 21 above and in view of Nishimura et al et al., (Nishimura), JP 03-118517.**

7. Sonoda differs from the claimed invention because he does not explicitly disclose the type of materials used for the projection (spacers, SP2) is one of Cr, AL and Mo.

Nishimura discloses a liquid crystal display including spacers. Nishimura also discloses that by giving conductivity such as forming spacers of metal (Al, Cu etc.), it is possible to prevent the orientation of liquid crystal molecules in a liquid crystal cell for compensation from being disordered (abstract).

Nishimura is evidence that ordinary workers in the art would find a reason, suggestion or motivation to use spacers that are made of aluminum.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the display device of Sonoda by substituting the projection (SP2) with spacers (projections) made of aluminum so that the orientation of liquid crystal molecules in a liquid crystal cell for compensation from being disordered can be prevented, as per the teachings of Nishimura.

Accordingly, claim 18 would have been obvious.

**8. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sonoda as applied to claims 1, 4-6, 13, 20 and 21 above and in view of Hiroaki Odai (Odai), JP 01-142530.**

9. Sonoda differs from the claimed invention because he does not explicitly disclose that the spacer (SP2) (applicant's projection) is made one of silicon oxide and a silicon nitride.

Odai discloses a liquid crystal display having spacers. Odai also discloses that spacers made of silicon oxide is advantageous since it improves display quality (abstract).

Odai is evidence that ordinary workers in the art would find a reason, suggestion or motivation to use spacers that is made of silicon oxide.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the display device of Sonoda by using a spacer (projection) that is made of silicon oxide so that display quality is improved, as per the teachings of Odai.

***Allowable Subject Matter***

10. Claims 2 and 8 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

As to claim 2, the prior arts of record do not anticipate or render obvious to one skilled in the art the claimed liquid crystal display device wherein the projection is formed in a format of creating wall around a transparent region so that the at least one spacer provided on the common electrode can not enter the transparent region.

As to claim 8, the prior arts of record do not anticipate or render obvious to one skilled in the art the claimed liquid crystal display device wherein one of the at least one projection formed on the inner-most surface of the first substrate faces another one of the at least one projection formed on the inner- most surface of the second substrate.

***Response to Amendment***

11. Applicant's amendment to the claims makes the reference Kishimoto invalid since in Kishimoto the pixel electrode and the common electrode are formed on different substrates and using the display device of Kishimoto in an in-plane switching type liquid crystal display (both the pixel electrode and the common electrode on the same substrate) would defeat the purpose of using Kishimoto.

***Response to Arguments***

12. Applicant's arguments filed on 05/27/03 have been fully considered but they are not persuasive.

In response to applicant's argument that Sonoda is not a valid prior art since the priority date of the instant application is 03/11/1999 whereas Sonoda has a filing date of 12/03/1999, it is respectfully pointed out to applicant that since applicant has not yet filed the verified English Translation of the Priority document, the rejection is maintained. Further, it is also pointed out to applicant that once the verified English Translation of the Priority document will be filed, it's content need to be reviewed prior to withdrawing Sonoda as a prior art.

Accordingly, the rejection based on Sonoda is still valid and thus maintained.

Applicant's argument regarding the rejection based on Kazunari and Masanobu is persuasive and thus the rejection is withdrawn.

***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a) USPAT 6,141,078 is related to an IPS type liquid crystal display including spacers formed under an opaque region.

b) USPAT 6,097,467 is related to an IPS type liquid crystal display device including spacers.

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.



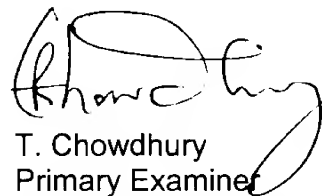
Art Unit: 2871

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tarifur R Chowdhury whose telephone number is (703) 308-4115. The examiner can normally be reached on M-Th (6:30-5:00) Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on (703) 305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7005 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

TRC  
July 2, 2003



T. Chowdhury  
Primary Examiner  
Technology Center 2800